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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

OWENS, DOUGLAS W

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 05/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/477,870

Applicant(s)

JAN ET AL.

Examiner

Douglas W Owens

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 31-39 and 123-133 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 31-39 and 126-133 is/are rejected.
- 7) ☒ Claim(s) 123-125 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Renumbering

1. New claims 40 – 50 have been renumbered as claims 123 – 133.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 31 – 39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 31 requires that the gate layer have a "uniform cross-section". The scope of the claims is vague, since a cross section of the gate layer can be taken from any point, which may result in a uniform cross section. For example, a cross section can be taken parallel to the substrate. Additionally, it is not known what is intended by the term "uniform cross-section". Is the intent to claim a cross section of uniform width?

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 31-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent No. 5,726,479 to Matsumoto et al.

Regarding claims 31 and 131, Matsumoto et al. teaches a gate electrode (Fig. 8) comprising:

- an insulative layer (3);
- a uniform cross section gate layer (4a);
- thin first spacers (5) on opposite sides of the gate;
- thick second spacers (7a) adjacent opposite sides of the thin first spacers; and
- a conductive layer (9a) on the gate, wherein part of the conductive layer is wider than the gate layer. This feature is shown in figure 8, where it can be seen that the conductive layer edges are disposed beyond the oxide layer (5).

Matsumoto et al. does not teach second and third thin spacers. It has been held that mere duplication of parts has no patentable significance unless a new and unexpected result is produced. It would have further been obvious to form the third spacer of an oxide since the oxide is a known material that is well suited for the intended use.

Regarding claim 32, Matsumoto et al. teaches a gate electrode, wherein the insulative layer is an oxide.

Regarding claim 33, Matsumoto et al. teaches a gate electrode, wherein gate layer comprises polysilicon (Col. 10, lines 10-14).

Regarding claims 34 and 128 (previously claim 45), Matsumoto et al. teaches a gate electrode, wherein the conductive layer comprises polycide (Col. 10, lines 43 – 45).

Regarding claims 35, 37 and 129 (previously claim 46), Matsumoto et al. teaches a gate electrode, wherein the thin spacers comprise an oxide (Col. 10, lines 18-20).

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Regarding claims 36 and 130, Matsumoto et al. does not teach a gate electrode, wherein second thin spacers comprise a nitride. Nitride layers are well known in the art for use in spacers. It would have been obvious to one of ordinary skill to use silicon nitride since it is a known material that is well suited for the intended use.

Regarding claims 38 and 132, Matsumoto et al. teaches a gate electrode, wherein the thick spacer comprises a nitride.

Regarding claims 39 and 133, Matsumoto et al. teaches a gate electrode, wherein the polycide comprises TiSi_2 .

Regarding claim 126 (previously claim 43), Matsumoto et al. teaches a gate electrode, wherein the insulative layer comprises an oxide (Col. 10, line 8).

Regarding claim 127 (previously claim 44), Matsumoto et al. teaches a gate electrode, wherein the gate layer comprises a polysilicon (Col. 10, lines 13 – 17).

6. Claims 123 – 125 (formerly claims 40 – 42) are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments filed March 4, 2003 have been fully considered but they are not persuasive.

The Applicant argues that Matsumoto et al. does not teach a gate layer with a uniform cross-section. A cross section taken along a plane parallel with the substrate would have had a uniform thickness or width.

The Applicant argues that Matsumoto et al. does not teach a conductive layer wherein part of the conductive layer is wider than the gate layer. This feature is shown in figure 8, where it can be seen that the conductive layer edges are disposed beyond the oxide layer (5).

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas W Owens whose telephone number is 703-308-6167. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for

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the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

DWO
May 16, 2003

Steven Lobe